

## **REMARKS**

### **I. Status of the claims**

By the present amendment, independent claims 5, 19, 26, 27, 28, 33, 41, 50, 54-58, 60-61, and 63-65 have been amended, and claims 1-4, 32, 48, 49, 51-53, 59, and 66 have been canceled. Claim 62 was previously canceled in the preliminary amendment filed with this application. Accordingly, claims 5-31, 33-47, 50, 54-58, 60-61, and 63-65 are currently pending.

### **II. Claim rejections**

- A. Rejection of claims 1, 5, 26, 28, 32, 33, 41, 48, 50-52, 53, 54, 56, 58-60, 63, 65, 66, 2, 13, 15, 17, 49, 42, 43, 44, 46, 34, 35, 36, 39, 4, 16, 18, 47, 40, and 30 under 35 U.S.C. § 102(b) in view of U.S. Patent No. 3,982,440 to Groleau.

In the Office Action the Examiner rejected claims 1, 5, 26, 28, 32, 33, 41, 48, 50-52, 53, 54, 56, 58-60, 63, 65, 66, 2, 13, 15, 17, 49, 42, 43, 44, 46, 34, 35, 36, 39, 4, 16, 18, 47, 40, and 30 under 35 U.S.C. § 102(b) in view of U.S. Patent No. 3,982,440 to Groleau. This rejection is respectfully traversed. Groleau does not teach or suggest calculating a “model health index” or a “process health index.”

Claim 5 recites that “the model health index indicates an estimate of an ability of a model to predict the behavior of the at least one process output as compared to an expected output,” and that “the process health index indicates an estimated probability of violation by the at least one process output of predefined specification limits.” Groleau fails to teach either of these indexes.

In the system of Groleau, as a part is being injection molded, pressure values are recorded to determine the viscosity of the material used to make the part. (Col. 10, lines 35-45) (Col. 20, lines 9-14). By comparing the calculated viscosity to a theoretical viscosity, it can be determined if a part is of the proper quality or not. Appropriate adjustments can be then made to the process. (Col. 20, lines 1-9) (Col. 18, lines 23-29).

There is no “model health index” being calculated in Groleau that indicates how good the adjustments being made to the process are. The Examiner’s citations to (Col. 20, lines 15-37 and lines 1-8) only refer to an “actual index,” which is derived from the recorded pressure values, and a theoretical index, which represents the desired value for the material viscosity. (Col. 19, lines 65-68) and (Col. 11, lines 10-11). Neither of these are a “model health index” as recited in claim 5.

Claim 5 recites that the “process health index indicates an estimated probability of violation” of a limit. In Groleau, it is determined if the calculated viscosity differs from the theoretical viscosity “by more than the predetermined tolerances.” (Col. 20, lines 1-9). It is never calculated how likely it is that the calculated viscosity will differ from the theoretical viscosity “by more than the predetermined tolerances.” Further, neither the “actual index” nor the “theoretical index” mentioned in Groleau express this probability of violation.

Accordingly, the Examiner is respectfully requested to withdraw the rejection of claim 5, and the corresponding rejection of dependent claims 6-18. Because independent claims 26, 28, 33, 41, 50, 54, 56, 58, 60, 63, and 65, also recite a “model health index” and/or a “process health index,” the Examiner is respectfully requested to withdraw the rejection of these claims, and of corresponding dependent claims 29-31, 34-36, 39, and 42-47.

- B. Rejection of claims 1, 5, 19, 26, 27, 28, 32, 33, 41, 48, 50-52, 53-61, 63-66, 2, 13, 15, 17, 20, 22, 24, 49, 42, 43, 44, 46, 34, 35, 36, 39, 4, 16, 18, 23, 25, 47, 40, 10, and 29-31 under 35 U.S.C. § 102(b) in view of U.S. Patent No. 6,389,331 to Jensen.

In the Office Action the Examiner rejected claims 1, 5, 19, 26, 27, 28, 32, 33, 41, 48, 50-52, 53-61, 63-66, 2, 13, 15, 17, 20, 22, 24, 49, 42, 43, 44, 46, 34, 35, 36, 39, 4, 16, 18, 23, 25, 47, 40, 10, and 29-31 under 35 U.S.C. § 102(b) in view of U.S. Patent No. 6,389,331 to Jensen. This rejection is respectfully traversed.

Without agreeing with the Examiner’s position, independent claims 5, 19, 26, 27, 28, 33, 41, 50, 54-58, 60-61 and 63-65 have been amended to recite “an advanced manufacturing process control system.” Jensen does not describe an “advanced manufacturing process control system.”

Rather, Jensen “relates to networks for managing systems of a building,” and describes a “technique for monitoring performance of a facility management system.” (Col. 1, lines 6-7) and (Col. 1, lines 52-53). Therefore, the Examiner is respectfully requested to withdraw this rejection.

- C. Rejection of claims 1, 5, 2, 28, 32, 33, 41, 48, 50-52, 53, 54, 56, 58-60, 63, 65, 66, 2, 13, 15, 17, 20, 22, 24, 49, 42, 43, 44, 46, 34, 35, 36, 39, 4, 16, 18, 23, 25, 47, 40, 10, and 29-31 under 35 U.S.C. § 102(b) in view of U.S. Patent No. 6,259,959 to Martin.

In the Office action the Examiner rejected claims 1, 5, 2, 28, 32, 33, 41, 48, 50-52, 53, 54, 56, 58-60, 63, 65, 66, 2, 13, 15, 17, 20, 22, 24, 49, 42, 43, 44, 46, 34, 35, 36, 39, 4, 16, 18, 23, 25, 47, 40, 10, and 29-31 under 35 U.S.C. § 102(b) in view of U.S. Patent No. 6,259,959 to Martin. This rejection is respectfully traversed. Martin does not teach or suggest an “advanced manufacturing process control system” or either of a “model health index” or “process health index” as recited in claim 5.

Martin describes a method for optimizing the throughput of a manufacturing line. By using the “X-factor” described in Martin, it is possible to determine which processes of the manufacturing line are limiting throughput. However, there is no “advanced manufacturing process control system” described in Martin. As described in the specification “the APC methodology attempts to compensate for any changes in the manufacturing process.” (Specification page 3, lines 2-5). The portions of Martin cited by the Examiner relating to claim 5, describe using the “X-factor” analysis for a semiconductor processing system. The “X-factor” can be used “for optimizing a manufacturing line” (Col. 2, lines 2-3). However, these cited portions do not describe an “advanced manufacturing process control system” that compensates for changes in the process actually being performed on the semiconductor processing system described by Martin.

Martin also fails to teach or suggest a “model health index” or a “process health index.” Although the “X-factor” may incorporate performance data since it is defined as “cycle time divided by raw process time” (Col. 3, lines 58-61); this “normalized cycle time” (Col. 3, line 57), does not represent either a “model health index” which “indicates an estimate of an ability of a model to

predict the behavior of the at least one process output as compared to an expected output,” or a “process health index” which “indicates an estimated probability of violation by the at least one process output of predefined specification limits.”

Accordingly, the Examiner is respectfully requested to withdraw the rejection of claim 5, and the corresponding rejection of dependent claims 6-18. Because independent claims 28, 33, 41, 50, 54, 56, 58, 60, 63, 65 also recite an “advanced manufacturing process control system” and a “model health index” and/or a “process health index,” the Examiner is respectfully requested to withdraw the rejection of these claims, and of corresponding dependent claims 29-31, 34-36, 39, and 42-47.

D. Rejection of claims 3, 14, 21, 45, 37, and 38 under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,389,331 to Jensen and U.S. Patent No. 5,548,535 to Zvonar.

In the Office Action the Examiner rejected claims 3, 14, 21, 45, 37, and 38 under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,389,331 to Jensen and U.S. Patent No. 5,548,535 to Zvonar. This rejection is respectfully traversed.

Because Zvonar does not make up for the deficiencies of Jensen in teaching an “advanced process control system,” claims 3, 14, 21, 45, 37, and 38 are allowable as for at least the same reasons as given above with respect to independent claims 5, 19, 41, and 33.

E. Rejection of claims 3, 14, 21, 45, 37, and 38 under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,259,959 to Martin and U.S. Patent No. 5,548,535 to Zvonar.

In the Office Action the Examiner rejected claims 3, 14, 21, 45, 37, and 38 under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,259,959 to Martin and U.S. Patent No. 5,548,535 to Zvonar. This rejection is respectfully traversed

Because Zvonar does not make up for the deficiencies of Martin in teaching a “model health index” or a “process health index,” claims 3, 14, 21, 45, 37, and 38 are allowable as for at least the same reasons as given above with respect to independent claims 5, 19, 41, and 33.

F. Rejection of claims 6-9 and 11-12 under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,259,959 to Martin and U.S. Patent No. 5,841,676 to Ali.

In the Office Action the Examiner rejected claims 3, 14, 21, 45, 37, 38 under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,259,959 to Martin and U.S. Patent No. 5,841,676 to Ali. This rejection is respectfully traversed.

Because Ali does not make up for the deficiencies of Martin in teaching a “model health index” or a “process health index,” claims 3, 14, 21, 45, 37, and 38 are allowable for at least the same reasons as given above with respect to independent claims 5, 19, 41, and 33.

### III. Conclusion

In view of the above amendment, applicant believes the pending application is in condition for allowance.

**AUTHORIZATION**

The Commissioner is hereby authorized to charge any additional fees, which may be required for this Amendment, or credit any overpayment to Deposit Account No. 08-0219.

In the event that an Extension of Time is required, or which may be required in addition to that requested in a petition for an Extension of Time, the Commissioner is requested to grant a petition for that Extension of Time which is required to make this response timely and is hereby authorized to charge any fee for such an Extension of Time or credit any overpayment for an Extension of Time to Deposit Account No. 08-0219.

Respectfully submitted,

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Ketan Kadiwala  
Registration No.: 57,725  
Attorney for Applicant(s)

Wilmer Cutler Pickering Hale and Dorr LLP  
1875 Pennsylvania Avenue, N.W.  
Washington, DC 20006  
202.663.6000 (telephone)  
202.663.6363 (facsimile)